

IN THE CLAIMS:

Claims 1-8 (canceled)

9. (new) A method of avoiding corrosion of a distillation plant for the separation of methylamines from a product stream which is obtained in the preparation of methylamines by gas-phase reaction of methanol and ammonia and which comprises monomethylamine, dimethylamine, trimethylamine, ammonia and methanol as components, wherein the separation comprises the steps of:

distilling the product stream in a first distillation column to separate off ammonia,

feeding the remaining components of the product stream obtained as bottoms to a second column,

carrying out an extractive distillation with introduction of water to separate off trimethylamine in the second column,

feeding the further components of the product stream obtained as bottoms from the second column as feed to a third column,

separating off monomethylamine and trimethylamine in the third column, and separating the monomethylamine and dimethylamine by distillation in a fourth column,

wherein alkali metal hydroxide is added to the second or third column to prevent corrosion in the distillation plant.

10. (new) A method as claimed in claim 9, wherein an additional fifth column is installed downstream of the third column, into the fifth column a stream taken from a side offtake or the bottom of the third column is fed and in the fifth column methanol is separated off by distillation.

11. (new) A method as claimed in claim 10, wherein methanol-free water obtained as bottoms from the fifth column is recirculated to the third column.

12. (new) A method as claimed in claim 9, wherein the alkali metal hydroxide is added to the feed to the third column.

13. (new) A method as claimed in claim 9, wherein the alkali metal hydroxide is added to the bottom from the second column or is introduced into a stripping section of the second column.

14. (new) A method as claimed in claim 9, wherein an amount of alkali metal hydroxide added is such that alkali metal hydroxide is still present in the bottoms from the third column.

15. (new) A method as claimed in claim 9, wherein the alkali metal hydroxide is sodium hydroxide.

16. (new) A method as claimed in claim 9, wherein the alkali metal hydroxide is potassium hydroxide.